

ABSTRACT

A surface sensing device includes an articulating head adapted for attachment to the spindle of a measuring machine and having two relatively rotatable parts capable of rotation about two mutually perpendicular axes. The device additionally includes a stylus assembly having a relatively stiff hollow stylus carrier, and a relatively flexible hollow stylus. An optical transducer system is provided within the stylus assembly and comprises a fixed light source which directs a beam of light towards a stylus tip, and a retro-reflective component at the tip which reflects the beam back to a fixed detector. The arrangement is such that lateral displacement of the stylus tip when the tip is in contact with a surface can be measured directly.

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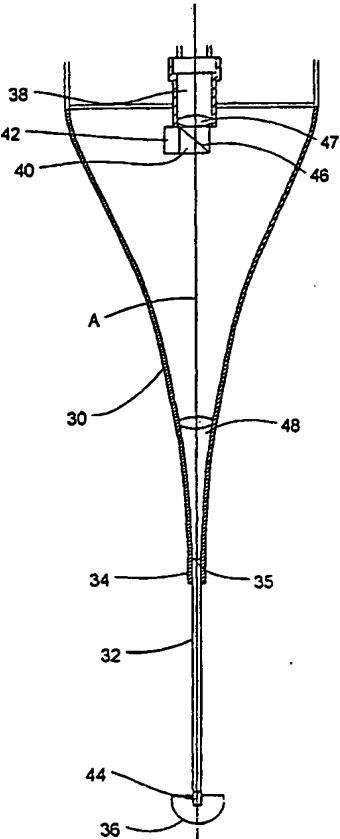
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(71) Applicant (<i>for all designated States except US</i>): RENISHAW PLC [GB/GB]; New Mills, Wotton-under-Edge, Gloucestershire GL12 8JR (GB).		
(72) Inventors; and		
(75) Inventors/Applicants (<i>for US only</i>): HOLLOWAY, Alan, James [GB/GB]; 1 Haw Street, Wotton-under-Edge, Gloucestershire GL12 7AG (GB). JONAS, Kevyn, Barry [GB/GB]; Flat 3FL, 125 Warrender Park Road, Marchmont, Edinburgh EH9 1DS (GB). WRIGHT, David, Allan [GB/GB]; 11 Carnethy Avenue, Edinburgh EH13 0DL (GB).		
(74) Agent: WAITE, John; Renishaw plc, Patent Dept., New Mills, Wotton-Under-Edge, Gloucestershire GL12 8JR (GB).		

(54) Title: SURFACE SENSING DEVICE WITH OPTICAL SENSOR

(57) Abstract

A surface sensing device includes an articulating head adapted for attachment to the spindle of a measuring machine and having two relatively rotatable parts capable of rotation about two mutually perpendicular axes. The device additionally includes a stylus assembly having a relatively stiff hollow stylus carrier (30), and a relatively flexible hollow stylus (32). An optical transducer system is provided within the stylus assembly and comprises a fixed light source (38) which directs a beam of light towards the stylus tip (36), and a retro-reflective component (44) at the tip which reflects the beam back to a fixed detector (42). The arrangement is such that lateral displacement of the stylus tip when the tip is in contact with a surface can be measured directly.



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